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On motion, the Secretaries were authorized to print the 8° plate, accompanying the memoir, drawn and published in the Proceedings.

Dr. Cresson communicated the analysis of a specimen of coal from Pulaski county, Va., which he exhibited and discussed with other members present.

Prof. Chase announced that at the request of Mr. Hall he had sought and found a harmonic series which exactly adapted itself to the radii of the observed orbits of Deimos and Phobus, to the radius of Mars, and to the centre of oscillation in Mars, and gave the correspondence of the theoretical and observed numbers on the black board.

Permission was given the Secretaries to report their Coalslack advertisement at the next meeting.

Pending nominations 839, 840, 841 and 842 were read, and 839 ballotted for.

On scrutiny of the ballot boxes the election of Mr. W. B. Taylor, of the Patent Office, Washington, D. C., was announced by the Chairman.

Stated Meeting, November 2, 1877.

Present, 16 members.

Vice-President Mr. Price in the Chair.

A letter accepting membership was received from Mr. Wm. B. Taylor, dated Washington, D. C., October 26, 1877.

Letters of acknowledgment were received from the New Zealand Institute, Wellington, September 7, 1877 (Trans. O. S., I to VI; N. S., I to XIV, and XV, i. ii.; Proc. VIII to XVI, except No. 96); from the Lond. Soc. of Antiquaries, October 9, 1877 (99); and the R. S. Edinboro', October 13, 1877 (99).

A letter of envoy was received from the Central Physical Observatory at St. Petersburg, September, 1877.

A letter requesting No. 88 was received from the R. In-

stitution of S. B., dated October 11, 1877. On motion the request was granted.

A letter requesting information concerning the publications of the Society previous to 1876 was received from F. Leypoldt, N. Y.

Donations for the Library were received from the R. S. New S. Wales; Gen. Stone of Cairo; Met. Obs. Dorpat; Soc. at Ulm; Révue Politique; R. Ast. S., and London Nature; Dr. E. Jarvis, Mass.; A. Antiq. S. Worcester, Mass.; Water Department of Philadelphia; Mr. C. W. Hart; Prof. E. D. Cope; Internat. Medical Congress; Mr. S. H. Scudder, and the U. S. Coast Survey.

Prof. Cope exhibited a number of fine teeth and other remains of Triassic vertebrates, found by Mr. Wheatley at his copper mines near Phœnixville, and laid on the table for publication in the Proceedings "Descriptions of extinct Vertebrata from the Permian and Triassic formations of the United States, by E. D. Cope, a part of which was a MSS. record of remarks made by him August 17, 1877. The descriptions in the paper apply to the following new names:

Palæoctonus appalachiensis,

" aulacodus,
Clepsysaurus veatleianus,
Suchoprion cyphodon,
Belodon caroliniensis,
Cricotus gibsonii,

" discophorus,

Lysorophus tricarinatus,
Diplocaulus calamandroides,
Strigilina gurleiana,
Ctenvolvus pusillus,
Orthacanthus quadriseriatus,
and
Archæobelus vellicatus.

Professor Marsh inquired what authority the Society assigned to the dates of publication affixed to its extra copies of papers in the Proceedings distributed by their authors, and how such dates were fixed, urging the importance of established and well understood rules for the government of the practice in such cases.

After much discussion, it was, on motion of Mr. Lesley,

"Resolved, That the Secretaries be directed to use, in case of separata or extras, and at the foot of the last page of the same, the phrase 'Printed (such a date)' viz: the date of the day of the completed printing of each memoir."

The Secretary read an imperfect list of fossils collected by Mr. C. E. Hall, Palæontologist of the Survey of Pennsylvania, at Harvey's Five Points, in Westmoreland county, Pa., from a horizon in the Lower Barren Coal Measures, about 300' below the Pittsburgh Coal and therefore about 2000 feet above the supposed or presumptive top of the Chemung Formation, one of which appears to be Streptorhyncus Chemungensis, var. arctostriatus of the Chemung Group in the State of New York (see N. Y. Pal. Vol. IV. p. 71), and another, Ambocælia umbonata, var. gregaria, does not seem to differ from that found in the Chemung of New York, yet occurs here in great numbers, and in some cases composes almost the whole mass of the rock. These fossils are accompanied by a Streptelasma too imperfect to be specified, and by undetermined species of Chonetes, Productus, Athyris and Cardiomorpha.*

Professor Frazer made some preliminary remarks upon a hitherto unnoticed trap dyke extending for miles through Lancaster county, in Pennsylvania, into or towards the Welsh Mountain. Its importance arises from the fact that it passes through the Nickel Mine, and through the North Valley Hill, of assumed Potsdam sandstone.

Pending nominations Nos. 840, 841, 842 and new nominations Nos. 843, 844, 845, 846, 847, 848, 849 and 850 were read.

An application for the Coal-slack Premium from John R. Peters, M. E., of Dover, Morris Co. N. J., was received through Mr. Briggs, and referred to the Committee on that subject.

A form of advertisement suggested by Mr. Fraley to the Secretaries was referred to their consideration.

Mr. Briggs, who objected to certain expressions, moved the following resolution, which was referred to the Board of Officers, after the word "approved" had been struck out with the consent of the mover.

^{*} See note p. 280.

WHEREAS the American Philosophical Society at its meeting on November 11, 1866, passed the following resolution:

Resolved, That the Board of Officers and Council be authorized to offer a premium of Five Hundred Dollars for any successful process by which Anthracite Coal Dust may be economically utilized, such premium to be competed for and awarded in such manner as the Board of Officers and Council may designate, and the premium if awarded to be paid out of the accumulated income of the Magellanic Premium Fund, and

WHEREAS, the American Philosophical Society as custodian of the Magellanic Fund as well as in its character as a Scientific Institution should take every precaution that the premium, if granted, should be given to such person or persons as may establish their right to the same, both on the merits of their claim and by their title as claimants, therefore

Resolved, That the Board of Officers and Council be requested to designate the manner of the competition and award for the instruction of the Committee and of the several applicants in the following regards:

- 1st. As to the process—Where a claim is based on any alleged invention or discovery, the priority or originality must be proved to be with the claimant to allow him to be considered entitled to the premium.
- 2d. As to the successful process—When the claim is founded upon the introduction and bringing into general public use well-known processes, the commercial or mechanical importance of which have heretofore been unappreciated, the instrumentality of the person or persons claiming, in effecting the result will be investigated, both as regards other claimants, if any, and also as against others who may not have applied for the premium in order that the premium may not be awarded in default improperly.
- 3d. As to economical utilization—It must be proved to the satisfaction of the Society that the particular process on which the premium is claimed, shall not only have operated successfully as a process both experimentally and in practice, but shall have so utilized anthracite coal dust as to have given a merchantable value to the same in the general markets for anthracite coal, or shall have demonstrated the economic substitution of dust for other coal in so large quantities as to materially aid the manufacturing industries of the country.

4th. The Board of Officers and Council are also requested to so regulate the conditions of the award that by no possibility any allegation of favoritism can be made, should the premium fall to a member of the Society.

The form suggested by Mr. Fraley and referred to the Secretaries, reads as follows:

"Mr. John E. Wootten having claimed the premium of five hundred dollars offered by the American Philosophical Society for a successful process for utilizing the waste material commonly known as coal dust, and a Committee of the Society having reported that his process is successful and meritorious, notice is hereby given that the Society will award such Premium to Mr. John E. Wootten on the Friday in February, 1878, unless

before that date satisfactory proof shall be given to the Society that the process of Mr. Wootten has been invented and successfully put in use by other parties prior to the date of his patent therefor.

"Such proof must be in writing and be filed before February 1, 1878, with the undersigned, one of the Secretaries of the Society, at the Hall, No. 104 South Fifth street, Philadelphia.

"Insert in two daily papers a week for six weeks."

The Treasurer having announced to the Society that \$4,000 of the United States 5-20 loan had been called in—On motion, it was

Resolved, That the Treasurer of the Society, J. Sergeant Price, be authorized under the seal of the Society, to sign the necessary transfer of the \$4,000 U.S. Loan called in by the Government, and receive the proceeds thereof.

Resolved, That the Treasurer be authorized to re-invest the proceeds of the U. S. Loan about to be paid off under directions of the Finance Committee of the Society.

The following letter to the Curators respecting the Peale Collection was laid before the Society:

ACAD. NAT. SCIENCE, PHILA., October 25, 1877.

Hector Tyndale, Esq., Charles M. Cresson, M.D., Curators of the Amer. Phil. Society.

Gentlemen:—I have had the pleasure to receive your communication of the 18th inst., authorizing the transfer of the Peale Collection of relics of the Stone age to the custody of this Academy, on condition that the said collection shall be returned to the American Philosophical Society on demand.

After the transfer has been made a receipt for the collection will be given. Very respectfully,

W. R. W. RUSHENBERGER,

Pres. Acad. Nat. Sci. of Phila.

And the meeting was adjourned.

Stated Meeting, November 16, 1877.

Present, 16 members.

Vice-President Mr. Fraley in the Chair.

Visitor Mr. Hendricks.

A letter was received from the Academy of Natural Sciences of Philadelphia, announcing that they had received

marasaurus, and Amplicælias (Camarasaurus supremus, Amplicælias altus, and A. latus), and gave their detailed descriptions in a paper entitled:

"On the Vertebrata of the Dakota epoch of Colorado. By E. D. Cope," with two others: viz. (see page 193).

"Descriptions of New Vertebrata from the Upper Tertiary formations of the West. By E. D. Cope;" (see page 219).

"On some saurians found in the Triassic of Pennsylvania by C. M. Wheatly. By E. D. Cope;" (see page 231).

Prof. Frazer exhibited two framed plaster casts of the Arms of Lord Baltimore, restored from half destroyed sculptures on the mile stones of Mason & Dixon's boundary line between the States of Pennsylvania and Maryland.

The Report of the Finance Committee was read and the recommendations contained therein adopted.

On the recommendation of the Finance Committee in their report, the following resolution was adopted, viz:

Resolved. That the Committee of Finance be authorized and directed to take the needful steps for the sale of the French rentes now held as an investment for the Michaux Legacy and when the proceeds are received into the treasury to make an investment thereof here in such securities as are designated by law for the investment of trust funds.

Pending nominations 840 to 850, and new nominations 851, were read.

And the meeting was adjourned.

Note to page 270.—Prof. Stevenson in a private letter dated January 15, 1878, writes that in the Crinoidal Limestone of the Barren Measures Spirifer planoconvexa is characteristically abundant, and has the same mode of occurrence in the rock, which Ambocociia umbonata has in the Chemung, but should not be mistaken for it.

ERRATA for Proceedings A. P. S. Vol. XVI. No. 99.

On page 624, line 12, substitute "that of the Sun, and the light received from it 75 times that received from A 61 Cygni, we obtain the following relations:" &c.

On page 625, line 25, for "fact of" read "fact that."